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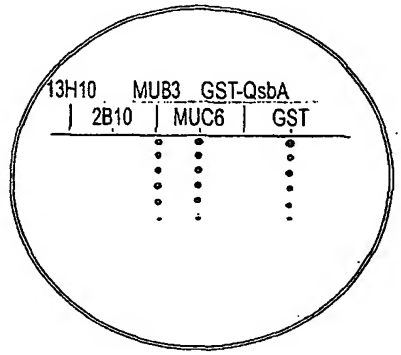
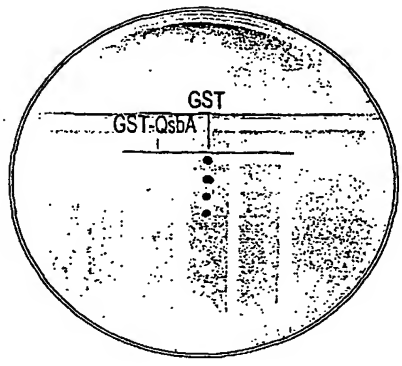
(54) Title: RALSTONIA AHL-ACYLASE GENE

(57) Abstract: This invention provides a gene, *qsbA*, which encodes a protein useful for inactivating certain bacterial quorumsensing signal molecules (N-acyl homoserine lactones) which participate in bacterial virulence and biofilm differentiation pathways. This gene was isolated from *Ralstonia sp.*, strain XJ12B. The invention also provides the QsbA protein, which possesses N-acyl homoserine lactone inactivating activity.





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Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/80 C12N15/57 A01K67/027 A61K38/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, BIOSIS, EMBL, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE SWISS-PROT 'Online! EBI-SBI; 1 May 2000 (2000-05-01) WHITE ET AL.: "Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1; Science 286:1571-1577 (1999)" retrieved from SWISS-PROT Database accession no. Q9RYQ4 XP002208348 "Aculeacin A acylase from Deinococcus radiodurans R1; 53,316% identity with SEQ ID NO: 2 in 769 aa overlap". abstract --- -/--	4-6

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
14 August 2002	02/09/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Ury, A

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL 'Online! EBI; 23 November 1999 (1999-11-23) WHITE ET AL.: "Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1; Science 286:1571-1577 (1999)" Database accession no. AE001836 XP002208349 "CDS complement (53991..56348): Encoding Aculeacin A acylase from Deinococcus radiodurans R1: 62,025% identity with SEQ ID NO: 1 in 1817 nt overlap". ---	2
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Y	same citations ---	2,4-6, 10-20
Y	LEADBETTER JARED R ET AL: "Metabolism of acyl-homoserine lactone quorum-sensing signals by Variovorax paradoxus." JOURNAL OF BACTERIOLOGY, vol. 182, no. 24, December 2000 (2000-12), pages 6921-6926, XP002208346 ISSN: 0021-9193 cited in the application abstract; figure 7 ---	2,4-6, 10,20
Y	LEADBETTER JARED R: "Quieting the raucous crowd" NATURE, vol. 411, 14 June 2001 (2001-06-14), pages 748-749, XP002208347 Figure 7 the whole document ---	2,4-6, 10-20
A	DONG YI-HU ET AL: "AiiA, an enzyme that inactivates the acylhomoserine lactone quorum-sensing signal and attenuates the virulence of Erwinia carotovora" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 97, no. 7, 28 March 2000 (2000-03-28), pages 3526-3531, XP002166712 ISSN: 0027-8424 cited in the application abstract --- -/--	1-20

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	DONG YI-HU ET AL.: "Quenching quorum-sensing-dependent bacterial infection by an N-acyl homoserine lactonase" NATURE, vol. 411, 14 June 2001 (2001-06-14), pages 813-817, XP001093866 cited in the application abstract	1-20

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		WO 0198214 A1	27-12-2001